Alberta
HUMAN RESOURCES AND EMPLOYMENT

the people & workplace department

September 2001

Occupational Injuries and Diseases in Alberta

Oilfield Trucking Services 1996 to 2000

Upstream Oil and Gas Sub-Sector #8

TABLE OF CONTENTS

1. Introduction 1

2. Sub-Sector Description 2

3. Lost-Time Claim Rates and Duration Rates 4
3.1 LTC Rates by Size of Employer: 2000 4

4. Analysis of the Lost-Time Claims 5
4.1 Nature of Injury 5
4.2 Duration of Disability 5
4.3 Type of Event/Exposure 6
4.4 Part of Body Injured 7
4.5 Source of Injury 8

5. Characteristics of the Injured Worker 9
5.1 Occupation of the Injured Worker 9
5.2 Age of injured Worker 10
5.3 Length of Time Employed 10
5.4 Gender of Injured Worker 10

6. Cost of Claims and Employer Premiums 11

7. Occupational Fatalities 12

8. OHS Investigated Occupational Fatalities: 1996-2000 13

Appendix A: Terms, Definitions, and Formulas 14

Appendix B: Upstream Oil and Gas 2000 Industry Codes 15

1. Introduction

The Mission of Alberta Human Resources and Employment

Alberta Human Resources and Employment's mission is to foster safe and healthy workplaces. Workplace Health and Safety works within the continuum of services provided by Alberta Human Resources and Employment. Its focus is on the development and implementation of strategies and initiatives aimed at meeting the department's goal that Alberta will have a fair, safe and healthy work environment. To this end, Alberta Human Resources and Employment recognizes that monitoring workplace health and safety will help to ensure that primary concerns are actively managed and that resources are directed where needed.

This report summarises the lost-time injuries and disease descriptions, characteristics of the injured worker and the risk of injury to workers in Alberta's upstream oil and gas industries for the years 1996 to 2000. Cost of the injuries and revenue in terms of total premiums paid by employers. Finally, a summary of occupational fatalities accepted by the WCB for compensation and brief descriptions of fatalities investigated by Occupation Health and Safety are also provided.

The purpose of this report is to provide government, employers, workers and health and safety officers in upstream oil and gas industries with information about the industry key health and safety issues.

Description of Upstream Oil and Gas Industries

The upstream oil and gas industries can be subdivided into the following sub-sectors.
Exploration, Oilfield Maintenance and Construction, Well Servicing with Service Rigs and Power Swivels, Drilling of Oil and Gas Wells, Oilfield Downhole and Other Services, Tar Sands, Petroleum Producers, and Oilfield Trucking Services.

The next section gives the descriptions of the Oilfield Trucking Services sub-sector.

2. Sub-Sector Description

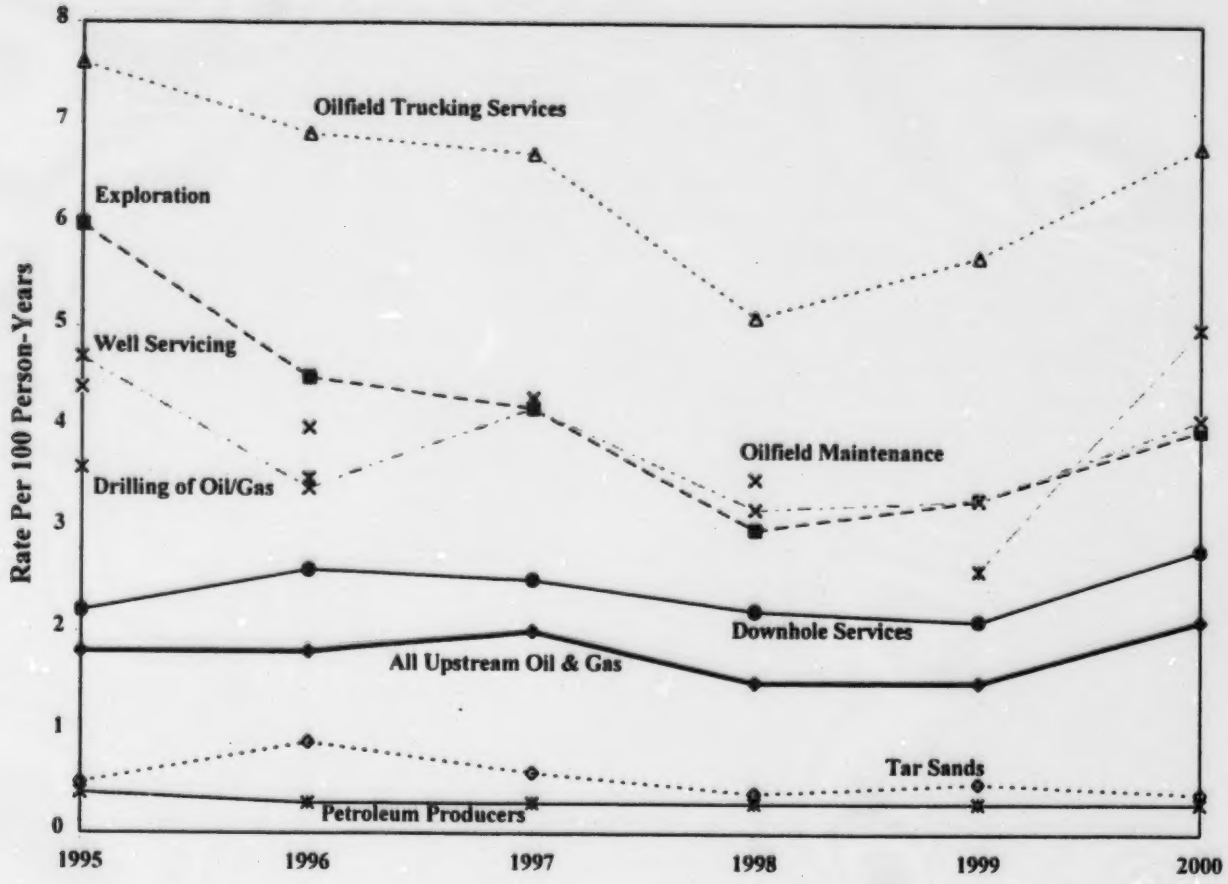
Sub-Sector # 8: Oilfield Trucking Services

Oilfield Trucking Services (Industry # 50720)
This industry describes businesses that operate for-hire trucking equipment for the purpose or ability to transport oversized or overweight loads, off-highway loads, in the oilfield. Services in this industry include for-hire specialized trucking services to and from oil and gas lease sites, not described under Specialized Hauling (industry 50701), or bulk or tank truck hauling (industry 50714).

Businesses may own or lease trucks, vehicles and equipment and shipping/receiving facilities or terminals. Business may opt to subcontract lease operators to provide trucking/delivery services, while only conducting scheduling, dispatching, and billing services in-house.
As most oil and gas lease sites are located in remote areas, vehicles are typically modified to operate in an off-road environment. Vehicles are usually equipped with positive air shut-offs. These attachments prevent engines from running once turned off, particularly in areas of highly combustible/explosive gases. The industry includes rig moving and operating pilot cars, and businesses in this industry may provide some highway hauling services using standard flatdecks and trucks in the course of a move.

Business may utilize specialized trucking equipment with tire chains, skid plates, heavy-duty bumpers, winches, cherry pickers and may employ drivers, labourers (swampers), warehouse/yard staff, forklift drivers, mechanics, dispatch/traffic, sales/estimators, office/administrative staff.

Lost-Time Claim Rates
Upstream Oil & Gas Subsectors
Alberta: 1995-2000



3. Lost-Time Claim Rates and Duration Rates

50720-Oilfield Trucking Services

Year	# of Accounts	Cost	Person Years	Days Lost	Duration Rate	LTCs	LTC Rate
1996	482	$927,398	2,255	7,612	337	155	6.9
1997	587	$1,371,117	3,348	9,333	279	225	6.7
1998	653	$1,172,951	3,310	7,767	235	168	5.1
1999	657	$845,818	2,707	7,690	284	153	5.7
2000	737	$1,377,812	3,063	8,828	288	208	6.8

3.1 LTC Rates by Size of Employer: 2000

Size of Employer	# of Accounts	LTCs	Person - Years	LTC Rate
A: 0 <= PYs < 1	558	10	208	4.8
B: 1 <= PYs < 5	90	9	199	4.5
C: 5 <= PYs < 10	37	19	263	7.2
D: 10 <= PYs < 20	18	17	271	6.3
E: 20 <= PYs < 40	20	50	558	9.0
F: 40 <= PYs < 100	6	31	375	8.3
G: PYs >= 100	8	72	1,189	6.1
Total	737	20	3,063	6.8

4. Analysis of the Lost-Time Claims

4.1 Nature of Injury

LOST-TIME CLAIMS ALBERTA: 1996 TO 2000	OCCURRENCE YEAR					Total	
	1996	1997	1998	1999	2000	Number	Percent
SPRAIN, STRAIN, TEARS	51	87	57	53	63	311	34.2
FRACTURE/DISLOCATION	34	52	33	34	57	210	23.1
SURFACE WOUNDS, BRUISES	28	39	27	19	32	145	16.0
OTHER TRAUMATIC INJURY/DISEASE	17	14	22	26	31	110	12.1
OPEN WOUNDS	10	18	14	9	11	62	6.8
NATURE - UNS	4	9	4	7	3	27	3.0
SYSTEMATIC DISEASES, DISORDERS	8	2	4	1	8	23	2.5
BURNS	2	4	3	2	2	13	1.4
MULTIPLE DISEASE/DISORDERS	1	.	3	.	.	4	0.4
OTHER DISEASE/DISORDERS	.	.	1	.	1	2	0.2
SYMPTONS, SIGN/ILL	.	.	.	2	.	2	0.2
Total	155	225	168	153	208	909	100.0

4.2 Duration of Disability

LOST-TIME CLAIMS ALBERTA: 1996 TO 2000	OCCURRENCE YEAR					Total	
	1996	1997	1998	1999	2000	Number	Percent
01 - 05 DAYS LOST	28	53	40	28	50	199	21.9
06 - 10 DAYS LOST	15	25	27	21	32	120	13.2
11 - 15 DAYS LOST	14	18	12	15	18	77	8.5
16 - 20 DAYS LOST	8	7	8	11	13	47	5.2
21 - 30 DAYS LOST	13	17	9	10	12	61	6.7
31 - 40 DAYS LOST	19	22	8	8	8	65	7.2
41 - 50 DAYS LOST	9	16	8	5	15	53	5.8
51 OR MORE DAYS LOST	45	56	53	52	50	256	28.2
DAYS LOST-UNSPECIFIED	4	11	3	3	10	31	3.4
Total	155	225	168	153	208	909	100.0

4.3 Type of Event/Exposure

LOST-TIME CLAIMS ALBERTA: 1996 TO 2000	OCCURRENCE YEAR					Total	
	1996	1997	1998	1999	2000	Number	Percent
UNKNOWN	21	16	5	15	14	71	7.8
STRUCK BY OBJECTS	25	43	31	27	33	159	17.5
CAUGHT IN OBJECTS	25	29	24	19	26	123	13.5
OVEREXERTION	17	29	25	17	30	118	13.0
FALL TO LOWER LEVEL	12	20	25	15	24	96	10.6
BODILY REACTION	18	25	8	17	25	93	10.2
TRANSPORTATION ACCIDENTS	11	19	17	11	12	70	7.7
FALL ON SAME LEVEL	9	20	12	12	15	68	7.5
OTHER FALLS	7	8	3	10	9	37	4.1
STRUCK AGAINST OBJECTS	6	8	7	4	10	35	3.9
EXPOSURE TO HARMFUL SUBSTANCES	3	3	6	4	3	19	2.1
RUBBED OR ABRADED	1	2	2	.	6	11	1.2
OTHER BODILY REACTION/EXERTION	.	1	3	.	1	5	0.6
FIRES AND EXPLOSIONS	.	2	.	.	.	2	0.2
REPETITIVE MOTIONS	.	.	.	2	.	2	0.2
Total	155	225	168	153	208	909	100.0

4.4 Part of Body Injured

LOST-TIME CLAIMS ALBERTA: 1996 TO 2000	OCCURRENCE YEAR					Total	
	1996	1997	1998	1999	2000	Number	Percent
BACK	33	51	38	33	43	198	21.8
ANKLE(S) & FOOT(FEET)-NOT TOES	27	35	20	26	33	141	15.5
LEG(S)	25	42	26	23	23	139	15.3
OTHER TRUNK	20	21	18	15	27	101	11.1
FINGER(S)	15	22	15	21	23	96	10.6
HAND(S)	15	11	13	6	12	57	6.3
OTHER UPPER EXTREMITIES	7	8	10	4	12	41	4.5
OTHER HEAD	3	11	9	8	8	39	4.3
MULTIPLE BODY PARTS	4	9	7	8	11	39	4.3
EYE(S)-OPTIC NERVE,VISION	1	5	3	2	7	18	2.0
OTHER LOWER EXTREMITIES	2	5	2	4	5	18	2.0
NECK	3	3	6	2	2	16	1.8
UNKNOWN	.	2	.	1	.	3	0.3
BODY SYSTEMS	.	.	1	.	2	3	0.3
Total	155	225	168	153	208	909	100.0

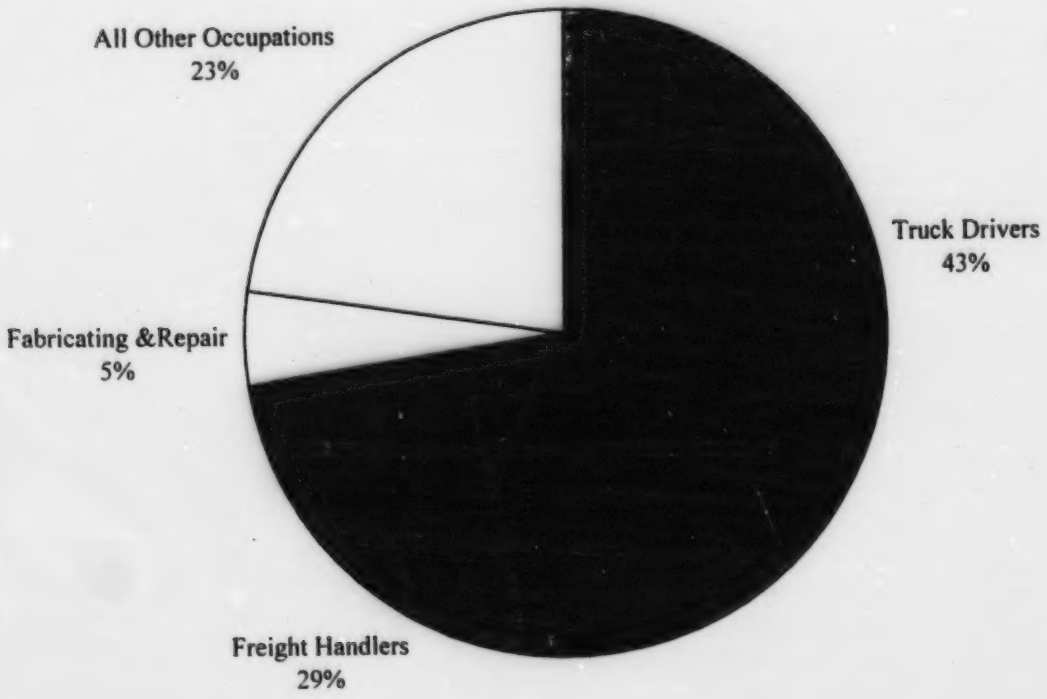
4.5 Source of Injury

LOST-TIME CLAIMS ALBERTA: 1996 TO 2000	OCCURRENCE YEAR					Total	
	1996	1997	1998	1999	2000	Number	Percent
UNKNOWN	40	37	30	30	30	167	18.4
PARTS & MATERIALS	37	61	41	40	50	229	25.2
STRUCTURES/SURFACES	18	35	26	27	40	146	16.1
VEHICLES	16	31	31	20	20	118	13.0
PERSONS-INJURED WORKER	19	26	11	19	25	100	11.0
OTHER SOURCES	4	7	5	2	13	31	3.4
HANDTOOLS-UNPOWERED	10	5	4	4	6	29	3.2
MACHINERY	2	3	7	3	11	26	2.9
CONTAINERS	3	5	4	3	2	17	1.9
FURNITURE & FIXTURES	4	4	3	1	4	16	1.8
OTHER TOOLS/EQUIPMENT	1	5	1	1	1	9	1.0
CHEMICAL/CHEMICAL PRODUCTS	.	1	3	2	1	7	0.8
MINERAL-METALS/NONMETALS	.	3	1	.	3	7	0.8
HANDTOOLS-POWERED	.	2	1	.	2	5	0.6
OTHER PLANTS/ANIMALS/MINERALS	1	.	.	.	.	1	0.1
PERSONS-NOT THE INJURED WORKER	.	.	.	1	.	1	0.1
Total	155	225	168	153	208	909	100.0

5. Characteristics of the Injured Worker

5.1 Occupation of the Injured Worker

Occupation of the Injured Worker
1996-2000



5.2 Age of injured Worker

LOST-TIME CLAIMS ALBERTA: 1996 TO 2000	OCCURRENCE YEAR					Total	
	1996	1997	1998	1999	2000	Number	Percent
15-19 YEARS	11	22	17	6	23	79	8.7
20-24 YEARS	33	35	37	30	43	178	19.6
25-34 YEARS	55	64	50	41	56	266	29.3
35-44 YEARS	33	69	44	41	56	243	26.7
45-54 YEARS	15	25	13	23	23	99	10.9
55-64 YEARS	8	9	7	12	7	43	4.7
65 YRS AND OVER	.	1	.	.	.	1	0.1
Total	155	225	168	153	208	909	100.0

5.3 Length of Time Employed

LOST-TIME CLAIMS ALBERTA: 1996 TO 2000	OCCURRENCE YEAR					Total	
	1996	1997	1998	1999	2000	Number	Percent
A. LESS THAN 1 MONTH	16	32	11	13	29	101	11.1
B. 1 MONTH TO < 6 MONTHS	38	61	50	30	58	237	26.1
C. 6 MONTHS TO < 1 YEAR	20	26	25	11	21	103	11.3
D. 1 YEAR OR MORE	46	53	37	60	50	246	27.1
E. TIME-UNSPECIFIED	35	53	45	39	50	222	24.4
Total	155	225	168	153	208	909	100.0

5.4 Gender of Injured Worker

LOST-TIME CLAIMS ALBERTA: 1996 TO 2000	OCCURRENCE YEAR					Total	
	1996	1997	1998	1999	2000	Number	Percent
MALE	148	216	163	149	198	874	96.1
FEMALE	5	5	2	2	6	20	2.2
GENDER-UNSPECIFIED	2	4	3	2	4	15	1.7
Total	155	225	168	153	208	909	100.0

6. Cost of Claims and Employer Premiums

Sub-Sector 8-Oilfield Trucking Services

	OCCURRENCE YEAR				
	1996	1997	1998	1999	2000
TRANSACTION YEAR					
1996	$775,241				
1997	$413,534	$1,072,601			
1998	$243,981	$669,108	$1,014,334		
1999	$332,755	$514,698	$1,581,551	$954,800	
2000	$64,074	$493,739	$491,441	$705,949	$1,118,712
Total Cost	$1,829,584	$2,750,146	$3,087,326	$1,660,748	$1,118,712
Total Premiums	$4,913,504	$5,526,027	$4,419,452	$2,821,983	$3,696,127

The above cost of lost-time claims and premiums are for the five-year period 1996 through to 2000. The data are as of May 4, 20001.

The claim cost reflects only paid cost on lost-time claims that occurred in the five-year period. These costs are tracked by year of occurrence and the year that the costs were transacted.

The premiums are the total premiums paid by employers for each year.

7. Occupational Fatalities

An occupational fatality is the death of a worker that results from a work-related incident or exposure. Alberta Human Resources and Employment classifies occupational fatalities into three general types: motor vehicle incident, workplace incident and occupational diseases. Each is described in detail below.

Motor Vehicle Incident

Motor vehicle incidents typically involve highway vehicles operating on public roads in which the fatally injured worker was either the driver or a passenger. This category also includes fatalities involving aircraft crashes, train crashes, helicopter crashes. Etc.

Workplace Incident

Fatal workplace incidents consist of cases in which the worker dies at a work site, or as a result of injuries sustained at a work site. It is this type of fatality that Alberta Human Resources and Employment may be responsible for investigating.

Occupational Diseases

Occupational disease fatalities consist mostly of recognized occupational disease, that is, disease known to be primarily or exclusively work-related (e.g. asbestosis, black lung disease). Occupational diseases are frequently diagnosed many years after the initial or crucial exposure to the toxic substance, and in such cases it is very difficult to determine when the fatal exposure occurred. Thus, the occupational disease category should not be interpreted to reflect present work site hazardous conditions or exposures.

Each year the Workers' Compensation Board (WCB) accepts some occupational fatality claims for compensation. Occupational fatality claims that were accepted in a particular year may include fatalities from prior years.

Description of Oilfield Trucking Services Workplace Fatalities Accepted by the WCB[1] Alberta: 1996-2000

YEAR	Motor Vehicle Incidents		Workplace Incidents		Total	
	N	%	N	%	N	%
1996	1	100.0	0	0	1	100
1997	2	100.0	0	0	2	100
1999	1	100.0	0	0	1	100
2000	0	0	2	100.0	2	100
Total	4	66.7	2	33.3	6	100

8. OHS Investigated Occupational Fatalities: 1996-2000

There were no investigated workplace fatalities in this sub-sector for the period 1996 through 2000.

[1] There were no fatalities accepted by WCB in 1998 for Oilfield Trucking Services

Appendix A: Terms, Definitions, and Formulas

Lost-Time Claim

A lost-time claim (LTC) is a claim for an occupational injury or disease, which disables the worker beyond the day of injury. Included are claims for which wages compensation are paid, permanent disability claims, fatalities, and cases in which the injured worker is assigned light duties or other modified work.

Person-Years

Person-year estimates are calculated from wage and payroll data provided by account holders to the WCB. Alberta Human Resources and Employment uses these data to estimate an average industry wage, and uses the average industry wage and employer payroll data to estimate person-years for each employer and each industry. One person-year is equivalent to one full-time worker working for one year, and can be assumed to equal 2,000 hours worked.

LTC Rate

The lost-time claim (LTC) rate is calculated by dividing the number of lost-time claims by the person-year estimate, and multiplying the result by 100. The LTC rate represents the probability or risk of disabling injury or disease to a worker during a period of one-year work. Comparisons of LTC rates between industries, or between years, can be used to indicate increases, decreases, or differences in this risk.

$$\text{LTC Rate} = \frac{\text{Number of LTCs X 100}}{\text{Estimated Person-years}}$$

Duration (Days Lost)

The duration of disability is the number of days following the injury or disease for which the worker was disabled, and unable to perform normal work duties. This information is obtained for this report from data on compensation days paid on each claim from WCB. Alberta Human Resources and Employment obtains these data on March 31 of the year following the claim year, and does not update the information, even though many injured workers continue to be disabled beyond this date. As a result, the duration information reported here underestimates the true impact of lost-time injury and disease.

Duration Rate

The duration rate is calculated by dividing the number of workdays lost (disability days) by the person-year estimate, and multiplying by 100. The result is expressed as days lost per 100 person-years worked, and indicates, in part, the economic impact of occupational injury and disease. Duration rates are not recommended as reliable indicators of full economic cost. In addition, readers are warned that duration rates are highly unstable when based on only a few lost-time claims; it is recommended that the duration rate not be calculated based upon fewer than 30 lost-time claims.

$$\text{Duration Rate} = \frac{\text{Disability Days X 100}}{\text{Estimated Person-Years}}$$

WCB Accepted Fatality

An occupational fatality is the death of a worker which resulted from a work-related incident or exposure and which has been accepted by the WCB for compensation. A fatality is counted in the year it is accepted.

NEC

Means 'Not Elsewhere Classified'.

UNS

Means 'Unspecified'.

Appendix B: Upstream Oil and Gas 2000 Industry Codes

Sub-Sector 1: **Exploration**
Industries: 09200~Seismic Geophysical/Mineral Exploration
09201~Shot Hole Drilling

Sub-Sector 2: **Oilfield Maintenance and Construction**
Industries: 06304~Oilfield Construction and/or Maintenance

Sub-Sector 3: **Well Servicing With Service Rigs**
Industries: 09903~Well servicing with Service Rigs including Power Swivels

Sub-Sector 4: **Drilling of Oil and gas Wells**
Industries: 09600~Drilling of Oil & Gas Wells

Sub-Sector 5: **Downhole & Other Oilfield Services**
Industries 06305~Field Production Operators
06306~Vacuum Removal of Waste
09900~Mud Logging
09902~Pressure Cleaning Services
09904~Rathole Drilling and Rig Anchoring
09911~Oilfield Downhole Services
09915~Well Casing Services
09921~Servicing Christmas Trees On Oil Wells
09927~Liquid Waste Treatment & Disposal

Sub-Sector 6: **Tar Sands**
Industries: 06600~Mining & Processing of Bituminous Sand
06601~Research/Development, Oil Sands and Heavy Oil Recovery

Sub-Sector 7: **Oil & Gas Exploration/Development**
Industries: 06300~Oil and Gas Exploration & Development-Upstream Operations

Sub-Sector 8: **Oilfield Trucking Services**
Industries: 50720~Oilfield Trucking Services

For further information contact:

Alberta Human Resources and Employment
Performance and Applied Research Branch
2nd Floor, 10808 – 99 Avenue
Edmonton, Alberta
T5K 0G2

Phone: 780-427-8531
Fax: 780-422-5070

Alberta Human Resources and Employment website:
http://www.gov.ab.ca/hre

Alberta Workplace Health and Safety website:
http://www.whs.gov.ab.ca